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DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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December 6, 1988

Mr. E. B. King, President
Jumbo Mining Company
6305 Fern Spring Cove
Austin, Texas 78730

Dear Mr. King:

Re: Initial Review of Notice of Intention to Commence Large Mining Operations, Drum Mountain Project, M/023/013, Juab County, Utah

Thank you for your recent application to commence mining operations for the proposed Drum Mountain Project in Juab County, Utah. We extend our sincere apologies for the unforeseen delay in completing our review of your application. The application is incomplete. The Division cannot proceed toward issuance of tentative approval until the following technical concerns have been adequately addressed.

TECHNICAL CONCERNS:

1. Rule R613-004-106(2), Operation Plan - The operator has failed to describe or identify if any deleterious or acid-forming material may be present or produced as a result of the mining operations. Please expand on your answer of N/A under item #12, on page 5 of the application form.

   Toxic materials might be in the form of acid-producing wastes, or material high in heavy metals. In both cases the Division is concerned about surface or ground-water contamination, and materials which may inhibit the revegetation of the site. The operator must evaluate the potential for these types of materials occurring at the minesite by using laboratory analysis or other scientific means of evaluation, then inform the Division accordingly. At your mine site, the Division is principally concerned with sulfide-bearing ore and wastes. Will any sulfide-bearing ore be mined or exposed? Will any sulfide-bearing overburden be disposed of in the waste dumps?

2. Rule R613-004-106(3), Operation Plan - Please describe the proposed mine development sequence for the new ore deposits. Will the reserves be mined concurrently, or sequentially? If sequentially, which deposit will be first, second, third, etc.?

3. Rule R613-004-112, Variances - The operator has not completed section VI., Variances, on page 10 of the application form. It is assumed this was an oversite, as several variances were inferred by reference in the text. The following variance inferences were noted: t[illegible]vaging and stockpiling, reclamation of the pits, [illegible]slope angles, revegetation of the waste dumps, and r[illegible]getation standards on certain areas previously [illegible] Please be advised that the Division must approve all va[illegible] requests in writing. All variance requests must be accompanied by justification and/or an effective alternative practice to the standard.

4. Rule R613-004-107(2)(3), Drainages & Erosion Control - The operator has indicated in "Exhibit C" - Impact Assessment, that steep slope haulage roads will have three foot high berms with "cutouts" to allow drainage. Energy dissipation measures must be provided at the discharge ends of the "cutouts" to control downslope erosion. Spacial placement of these cutouts should be determined based upon standard engineering/hydrologic practices for construction of roads.

   The operator indicates that coarse rock will be placed on the sides of the waste dumps to prevent erosion. This provision is unacceptable until the option of lessening the waste dump slopes and revegetating has been explored. The operator indicates that the waste dumps slopes will be left at the angle of repose. Several problems would arise if this where allowed: a) the slopes will be more prone to erosion; b) the slopes will be very difficult to revegetate; c) slope stability cannot be guaranteed, at this point.

   If the operator desires to leave the waste dump slopes at the angle of repose, a well substantiated variance request must be provided. The Division requests that the operator consider relocating these dumps to areas where the outslopes can be graded to slopes of at least 2H to 1V (maximum slope for acceptable reclamation), or to consider dumping waste material back into the pits. A variance cannot be granted until these options have been thoroughly evaluated.

   The operator states that if major erosion occurs, sides of dumps may have to be seeded and/or terraced along with catch basins placed down drainage. The Division will require that these, or similar erosion control measures, be implemented by the operator before major erosion occurs.

The plan also indicates that new haulage roads will be winterized to keep drainage off; then roads will be ripped and seeded. Please explain the term "winterized"? It is assumed that the ripping and seeding, will not take place until final reclamation? If this is not the case, please indicate otherwise.

5. Rule R613-004-107, Operational Practices - The "Impact Assessment" section also indicates that haul roads will be watered to control dust and/or calcium chloride may be used. The proposal also indicates that blasted ore will be watered and/or misters will be used for dust control while crushing. The State Division of Environmental Health must determine the adequacy and applicability of the operator's fugitive dust suppression/control measures.

   Item #18 of Exhibit C, indicates that the highwalls will be posted and fenced, or blocked with rock. Are these measures to be applicable during operations, after reclamation, or both? Since it was not specified, the Division will assume that it applies to both conditions. Please advise if intended otherwise.

6. R613-004-107(5), Operational Practices, Soils - On page 5, item 4, and page 7, item 16, the operator proposes that no soil material will be salvaged because none exists on the areas to be disturbed. The operator has provided only pictures and an ocular description of the area to prove the lack of topsoil material. No soil survey information has been provided in the plan by the operator.

   The application did not contain proper soil survey information for the proposed mining areas. An order 3 Soil Survey must be provided before the Division can consider waiving the topsoil salvage requirement. The soil survey should provide information covering the general area under ownership and/or control by Jumbo. This coverage is necessary to evaluate the possibility of borrowing suitable soil material from areas adjacent to the proposed mine sites. An analysis of any topsoil material to be used in reclamation must be provided to the Division. The basic parameters for analysis are listed on pg 7, item 16 (b) of the original NOI application.

   Overburden material or wasterock material can be used as a reclamation medium. However, the operator must first demonstrate that topsoil is not salvageable and that the substitute material will support plant growth. The overburden or wasterock would have to be analyzed for the basic soil constituents. If the waste material contains high amounts of sulfur or pyrite, the material must be evaluated for acid-base potential.

If an area was disturbed pre-law and topsoil was not salvaged, then a topsoil variance can be justified. Areas at this site that have been disturbed pre-law, should be identified by the operator. Such identification will make it easier for Jumbo and the Division to agree upon the final reclamation requirements for these areas.

7. R613-004-111(8), Roads & Pads - In reference to exhibit C, item 12, the operator must commit to reclaiming any roads that are not already existing BLM, County, or private roads. This commitment is unclear in the Plan. All newly constructed mine roads must be reclaimed at the conclusion of mining, unless a legitimate post-mining use can be justified. Roads proposed to remain after mining operations have ceased, must have a responsible entity willing to assume liability and provide proper maintenance for the road(s).

11. R613-004-111(13), Revegetation - (a) On page 9, item E, the operator proposes to use four reclamation species on this area. These species are acceptable, however, the Division will require that this list be expanded. It is not clear what the seeding rate will be, therefore a seeding rate must be specified for each species. The following species mix is recommended:

1. bluebunch wheatgrass (Agropyron spicatum)	3 lbs/ac
2. western wheatgrass (Agropyron smithii)	3 lbs/ac
3. indian ricegrass (Oryzopsis hymenoides)	3 lbs/ac
4. needle and thread grass (Stipa comata)	3 lbs/ac
5. yellow sweetclover Melilotus officinalis)	2 lb/ac
6. cicer milkvetch (Astragalus cicer)	1 lb/ac
7. fourwing saltbush (Atriplex canescens)	2 lbs/ac
8. rabbitbrush (Chrysothamnus nauseous)	2 lbs/ac
	total= 19 lbs/ac

The above seeding rate is for broadcast seeding only. If the operator chooses to drill seed, these rates can be reduced. The operator must specify in the plan how the seed will be applied, how the seedbed will be prepared, and if soil amendments will be applied to the seedbed before or after seeding.

(b) The operator indicates that the tops of the waste dumps will be ripped and seeded without topsoil or soil amendment applications. The application does not address revegetation of the pits. In both cases, a variance must be requested by the operator to leave these areas unrevegetated, or to not meet the 70% revegetation standard. The operator must present valid rational for making the request.

If no topsoil material is to be used on top of the waste dumps, the operator will be asked to prove that revegetation can be accomplished without topsoil. This may be done by establishing and then evaluating onsite test plots. If topsoil is not used, the operator may have to fertilize and mulch to meet the revegetation standard. This can be determined by examination of the test plots. Test plots can also be used to determine which plant species will grow best in this environment.

12. R613-004-111(12) & (13), Topsoil & Revegetation - In exhibit C, item E, the operator indicates, that the pits will remain with benched highwalls. If the pits will not be reclaimed, the operator must justify variance requests for not topsoiling or revegetating. Otherwise, the pits must be regraded, topsoiled and revegetated. The operator may propose a viable alternative, which would include partial reclamation of the pit, in lieu of reclaiming the entire pit.

13. R613-004-113, Surety - A detailed reclamation surety estimate has been prepared for the Jumbo Alto/Ibex permit application. The $19,000 estimate is broken down into unit costs and is escalated for a five year period (1993 dollars) at 2.3% annual inflation rate.

Also attached is a revised reclamation estimate for the Drum minesite. The estimate is based upon the projected mining plan submitted by Western States Minerals in 1983 and the disturbed area map submitted in 1986. Certain assumptions, as detailed in the cover letter, have effectively reduced the dollar amount from $264,080 to $236,000. Any alterations which may have occurred, or may be planned for this minesite will likely require an adjustment to this estimate. It should only be used as a guide until the Division is provided with alternate and/or updated information.

Therefore, Jumbo Mining Company's reclamation surety liability for the new Alto/Ibex permit application and the existing Drum Mine totals $255,000. Provided all of the Division's assumptions are correct, this is the minimum amount of surety which the operator must provide before these permitting activities can be approved. The Division also requests copies of the most recent (1987 ?) Drum Mine as-built drawings, which most accurately reflect the status of the mining facilities and disturbed areas.

GENERAL QUESTIONS AND CONCERNS:

1. Jumbo Mining Company has purchased the Drum Mine (M/027/007) from Western States Minerals Corporation. As part of the purchase, Jumbo has assumed the responsibility for continued mining operations and the reclamation obligations for this mine. The formal permit transfer process has not yet been finalized with our office. This transfer must be completed before the Division can formally recognize the new ownership and release Western States Minerals reclamation bond.

2. What will be the impact of the addition of the new crushed ore and excess waste material, as generated from the new pits and underground operations, upon the existing reclamation plan for the Drum Mine? How will the ultimate reclamation contour configurations be impacted by addition of these materials? Will there be sufficient topsoil resources stockpiled to assure final reclamation of the expanded heaps and waste dumps? Will the outslopes remain stable, or will additional erosion and stabilization measures be warranted?

3. The latest Annual Operations & Progress Report for the Drum Mine indicates that approximately 10,000 cu. yds. of topsoil was salvaged during construction of the mine. The permit was approved with the understanding that approximately 30,000 cu. yds. of topsoil was to be salvaged for final reclamation. This deficiency must be resolved before the Division will consider the release of Western States Minerals reclamation surety and finalize the permit transfer process. This will also be a condition to final approval of the application to commence mining operations at the Alto/Ibex mine sites.

It is the Division's opinion that the permitting process for the proposed mining operation could be handled simply and more expeditiously as an amendment to the existing Drum Mine permit application. The reasons for this recommendation are as follows:

* The new Drum Mountain Project is located within close proximity to the existing Drum Mine.

* The ore produced from the new pits and underground mining operations will be processed with existing facilities at the Drum Mine.

* Rule R613-001-106, Definition of "Onsite" - A series of related properties under the control of a single operator, but separated by small parcels of land controlled by others, will be considered a single site unless excepted by the Division.

* Future permitting of the Mizpah Pit also raises questions regarding what impact(s) would its development have on the operations and final reclamation plan of the Drum Mine?

* The existing permit approval and reclamation bond on file for the Drum Mine would simplify the permitting process of this application, if processed as a permit revision. This application could be reformated as necessary to be incorporated directly into the existing permit as an addendum. The Drum Mine permit number could be used for the entire project and only one revised reclamation surety would need to be provided.

Thank you for your patience and cooperation in completing this permitting action. Please provide your written response to this letter by January 15, 1989. Please contact me or D. Wayne Hedberg of my staff should you have questions pertaining to this review.

Sincerely,

Lowell P. Braxton

Lowell P. Braxton
Administrator
Mineral Resource Development
and Reclamation Program

DWH/jb
cc: F. Rex Rowley, BLM, House Range Resource Area
Don Osler, State Health
Jerry Mansfield, State Lands
Minerals team
MN3/18-24